

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A method of driving a reflective type liquid crystal display device,

said reflective type liquid crystal display device comprising:

a first insulating substrate having transparency;

a reflecting layer;

a second insulating substrate being disposed opposite to the first insulating substrate, at least a part of said second insulating substrate covering the reflecting layer;

a first electrode being formed over the first insulating substrate;

a first conducting line for applying electrical signals to the first electrode, said first conducting line being formed over the first insulating substrate;

a first thin film transistor formed over the first insulating substrate as a switching element and electrically connected to the first electrode and the first conducting line,

said first thin film transistor comprising:

a crystalline semiconductor island formed over the first insulating substrate;

source and drain regions formed in the crystalline semiconductor island;

a gate electrode formed adjacent to the crystalline semiconductor island having a gate insulating film therebetween,

a pair of low concentration regions each being adjacent to the source and drain regions in the crystalline semiconductor island;

an interlayer insulating film covering the first thin film transistor, said interlayer insulating film being a multilayer film of silicon oxide and silicon nitride;

a second electrode being formed over the first insulating substrate, said second electrode being electrically insulated from the first electrode and from the first conducting line;

a second conducting line for applying electrical signals to the second electrode, said second conducting line being formed on the first insulating substrate;

a liquid crystal material being interposed between the first and second insulating substrates;

said method comprising the steps of:

producing a parallel electric field to the first insulating substrates, said parallel electric field being generated between the first and second electrodes, and

driving the liquid crystal material by the parallel electric field,

wherein the liquid crystal material is oriented in a hybrid alignment

nematic mode.

2. (Cancelled)

3. (Original) A method according to claim 1, wherein each of the first and second electrodes has transparency.

4. (Original) A method according to claim 1, wherein the first and second electrodes are alternately protruding lines of electrodes which are nested in each other alternately with a given spacing therebetween.

5. (Original) A method according to claim 1, wherein each of the first and second electrodes comprises ITO.

6. (Original) A method according to claim 1, wherein each of first and second insulating substrate is one selected from the group consisting of glass, quartz and polyethylene sulfate.

7. (Previously Presented) A method of driving a reflective type liquid crystal display device,

said reflective type liquid crystal display device comprising:

a first insulating substrate having transparency;

a reflecting layer;

a second insulating substrate being disposed opposite to the first insulating substrate, at least a part of said second insulating substrate covering the reflecting layer;

a first electrode being formed over the first insulating substrate;

a first conducting line for applying electrical signals to the first electrode, said first conducting line being formed over the first insulating substrate;

a first thin film transistor being formed over the first insulating substrate as a switching element and electrically connected to the first electrode and the first conducting line;

said first thin film transistor comprising:

a crystalline semiconductor island formed over the first insulating substrate;

source and drain regions formed in the crystalline semiconductor island;

a gate electrode formed adjacent to the crystalline semiconductor island having a gate insulating film therebetween,

a pair of low concentration regions each being adjacent to the source and drain regions in the crystalline semiconductor island;

a second thin film transistor formed over the first insulating substrate for driving the first thin film transistor;

an interlayer insulating film covering each of the first and second thin film transistors, said interlayer insulating film being a multilayer film of silicon oxide and silicon nitride;

a second electrode being formed over the first insulating substrate and electrically insulated from the first electrode and from the first conducting line;

a second conducting line for applying electrical signals to the second electrode, said second conducting line being formed over the first insulating substrate;

a biaxial film disposed over the first insulating substrate;
a polarizing plate disposed on the biaxial film;
a liquid crystal material being interposed between the first and second insulating substrates;

said method comprising the steps of:

producing a parallel electric field to the first insulating substrates, said parallel electric field being generated between the first and second electrodes, and
driving the liquid crystal material by the parallel electric field,
wherein the liquid crystal material is oriented in a hybrid alignment nematic mode.

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8. (Cancelled)

9. (Original) A method according to claim 7, wherein each of the first and second electrodes has transparency.

10. (Original) A method according to claim 7, wherein the first and second electrodes are alternately protruding lines of electrodes which are nested in each other alternately with a given spacing therebetween.

11. (Original) A method according to claim 7, wherein each of the first and second electrodes comprises ITO.

12. (Original) A method according to claim 7, wherein each of first and second insulating substrate is one selected from the group consisting of glass, quartz and polyethylene sulfate.

13. (Previously Presented) A method of driving a reflective type liquid crystal display device,

said reflective type liquid crystal display device comprising:

a first insulating substrate having transparency;
a second insulating substrate being disposed opposite to the first insulating substrate having a reflecting layer thereon;
a first electrode being formed over the first insulating substrate;
a first conducting line for applying electrical signals to the first electrode, said first conducting line being formed over the first insulating substrate;
a first thin film transistor being formed over the first insulating substrate as a switching element and electrically connected to the first electrode and the first conducting line;
said first thin film transistor comprising:
a crystalline semiconductor island formed over the first insulating substrate;
source and drain regions formed in the crystalline semiconductor island;
a gate electrode formed adjacent to the crystalline semiconductor island having a gate insulating film therebetween,
a pair of low concentration regions each being adjacent to the source and drain regions in the crystalline semiconductor island;
a second thin film transistor being formed over the first insulating substrate for driving the first thin film transistor, said second thin film transistor including an n-channel third thin film transistor and a p-channel fourth thin film transistor being connected to each other;
an interlayer insulating film covering each of the first and second thin film transistors, said interlayer insulating film being a multilayer film of silicon oxide and silicon nitride;
a second electrode being formed over the first insulating substrate and electrically insulated from the first electrode and from the first conducting line;
a second conducting line for applying electrical signals to the second electrode, said second conducting line being formed over the first insulating substrate;
a liquid crystal material being interposed between the first and second insulating substrates;
said method comprising the steps of:

producing a parallel electric field to the first insulating substrates, said parallel electric field being generated between the first and second electrodes, and driving the liquid crystal material by the parallel electric field, wherein the liquid crystal material is oriented in a hybrid alignment nematic mode,

wherein the liquid crystal material has a first orientation near the first insulating substrate while the liquid crystal material has a second orientation near the second insulating substrate, said second orientation being different from the first orientation.

14. (Cancelled)

15. (Original) A method according to claim 13, wherein each of the first and second electrodes has transparency.

16. (Original) A method according to claim 13, wherein the first and second electrodes are alternately protruding lines of electrodes which are nested in each other alternately with a given spacing therebetween.

17. (Original) A method according to claim 13, wherein each of the first and second electrodes comprises ITO.

18. (Previously Presented) A method according to claim 13, wherein each of the first and second insulating substrate is one selected from the group consisting of glass, quartz and polyethylene sulfate.

19. (Previously Presented) A method of driving a reflective type liquid crystal display device,
said reflective type liquid crystal display device comprising:
a first insulating substrate having transparency;

a second insulating substrate being disposed opposite to the first insulating substrate;

a reflecting layer on the second insulating substrate;

a first electrode being formed over the first insulating substrate;

a first conducting line for applying electrical signals to the first electrode, said first conducting line being formed over the first insulating substrate;

a first thin film transistor formed over the first insulating substrate as a switching element and electrically connected to the first electrode and the first conducting line;

said first thin film transistor comprising:

a crystalline semiconductor island formed over the first insulating substrate;

source and drain regions formed in the crystalline semiconductor island;

a gate electrode formed adjacent to the crystalline semiconductor island having a gate insulating film therebetween,

a pair of low concentration regions each being adjacent to the source and drain regions in the crystalline semiconductor island;

a second thin film transistor formed over the first insulating substrate for driving the first thin film transistor;

an interlayer insulating film covering each of the first and second thin film transistors, said interlayer insulating film being a multilayer film of silicon oxide and silicon nitride;

a second electrode being formed over the first insulating substrate and electrically insulated from the first electrode and from the first conducting line;

a second conducting line for applying electrical signals to the second electrode, said second conducting line being formed over the first insulating substrate;

a liquid crystal material being interposed between the first and second insulating substrates;

said method comprising the steps of:

producing a parallel electric field to the first insulating substrates, said parallel electric field being generated between the first and second electrodes, and driving the liquid crystal material by the parallel electric field, wherein the liquid crystal material is oriented in a hybrid alignment nematic mode,

wherein the liquid crystal material is oriented substantially horizontally to the first insulating substrate near the first insulating substrate while the liquid crystal material is oriented substantially vertically to the second insulating substrate near the second insulating substrate.

20. (Cancelled)

21. (Original) A method according to claim 19, wherein each of the first and second electrodes has transparency.

22. (Original) A method according to claim 19, wherein the first and second electrodes are alternately protruding lines of electrodes which are nested in each other alternately with a given spacing therebetween.

23. (Original) A method according to claim 19, wherein each of the first and second electrodes comprises ITO.

24. (Original) A method according to claim 19, wherein each of the first and second insulating substrate is one selected from the group consisting of glass, quartz and polyethylene sulfate.

25. (New) A display device comprising:

a first insulating substrate;

a second substrate being disposed opposite to the first insulating substrate;

a first electrode formed over the first insulating substrate;
a first conducting line for applying electrical signals to the first electrode, said first conducting line being formed over the first insulating substrate;
a second electrode, said second electrode being electrically insulated from the first electrode and from the first conducting line;
a thin film transistor formed over the first substrate, said thin film transistor being electrically connected to the first electrode and the first conducting line; and
an interlayer insulating film covering the thin film transistor;
wherein said interlayer insulating film is a multilayer film comprising silicon oxide film and silicon nitride film.

26. (New) A display device according to claim 25, wherein the first and second electrodes have transparency.

27. (New) A display device according to claim 25, wherein the first and second electrodes are alternately protruding lines of electrodes nested in each other alternately with a given spacing therebetween.

28. (New) A display device according to claim 25, wherein each of the first and second electrodes comprises ITO.

29. (New) A display device according to claim 25, wherein a second conducting line for applying electrical signals to the second electrode is formed over the first insulating substrate.

30. (New) A display device according to claim 25, wherein at least one of the first insulating substrate and the second substrate is one selected from the group consisting of glass, quartz and polyethylene sulfite.

31. (New) A display device according to claim 25, wherein at least one of the first insulating substrate and the second substrate has transparency.

32. (New) A display device according to claim 25, wherein a reflecting layer is provided over said second substrate.

33. (New) A display device according to claim 25,
wherein said thin film transistor comprises:

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a crystalline semiconductor island over the first insulating substrate;
source and drain regions formed in the crystalline semiconductor island; and
a gate electrode formed adjacent to the crystalline semiconductor island having a gate insulating film therebetween.

34. (New) A display device according to claim 33, wherein the thin film transistor comprises a pair of low concentration regions adjacent to the source and drain regions in the crystalline semiconductor island, respectively.

35. (New) A display device according to claim 25, wherein said display device is a liquid crystal display device.

36. (New) A display device according to claim 25, wherein a liquid crystal material is interposed between said first insulating substrate and said second substrate.

37. (New) A display device according to claim 36, wherein the liquid crystal material is oriented in a hybrid alignment nematic mode.

38. (New) A display device according to claim 36, wherein a parallel electric field is generated between the first and second electrodes, and the liquid crystal material is driven by the parallel electric field.

39. (New) A display device according to claim 36, further comprising:
a biaxial film disposed over the first substrate; and
a polarizing plate disposed over the biaxial film.

40. (New) A display device comprising:
a thin film transistor; and
an interlayer insulating film provided over the thin film transistor;
wherein the interlayer insulating film is a multilayer film comprising silicon oxide film
and silicon nitride film.

41. (New) A display device according to claim 40,
wherein a wiring is provided over said interlayer insulating film; and
wherein a part extended from said wiring is electrically connected to the thin film
transistor through a contact hole in said interlayer insulating film.

42. (New) A display device according to claim 40, wherein a first insulating film is
provided over said interlayer insulating film.

43. (New) A display device according to claim 42, wherein the first insulating film
comprises silicon nitride film.

44. (New) A display device according to claim 42,
wherein a display electrode is provided over said first insulating film; and
wherein a part extended from said display electrode is electrically connected to the wiring
through a contact hole in said first insulating film.

45. (New) A display device according to claim 44, wherein a second insulating film is
provided over said display electrode.

46. (New) A display device according to claim 44, wherein said display electrode has transparency.

47. (New) A display device according to claim 45, wherein said second insulating film comprises silicon nitride film.

48. (New) A display device according to claim 45, wherein a common electrode is provided over said second insulating film.

49. (New) A display device according to claim 48, wherein said common electrode has transparency.

50. (New) A display device according to claim 40, wherein a black matrix is provided over said second insulating film.

51. (New) A display device according to claim 40, wherein said thin film transistor comprises:


a crystalline semiconductor island;
source and drain regions formed in the crystalline semiconductor island; and
a gate electrode formed adjacent to the crystalline semiconductor island having a gate insulating film therebetween.

52. (New) A display device according to claim 51, wherein the thin film transistor comprises a pair of low concentration regions adjacent to the source and drain regions in the crystalline semiconductor island, respectively.

53. (New) A display device according to claim 40, wherein said display device is a liquid crystal display device.

54. (New) A display device according to claim 40, further comprising:
a liquid crystal material interposed between a first substrate provided at the thin film transistor and a second substrate.

55. (New) A display device according to claim 54, wherein the liquid crystal material is oriented in a hybrid alignment nematic mode.



56. (New) A display device according to claim 54, wherein at least one of the first and second substrates is one selected from the group consisting of glass, quartz and polyethylene sulfate.

57. (New) A display device according to claim 54,
wherein the liquid crystal material is driven by a parallel electric field generated between display and common electrodes provided each other alternately with a given spacing therebetween over the first substrate.

58. (New) A display device according to claim 54, wherein a reflecting layer is provided over the second substrate.

59. (New) A display device according to claim 57, wherein a rubbing direction at a polyimide film provided over the first substrate is parallel to teeth of said display and common electrodes.

60. (New) A display device according to claim 54, further comprising:
a biaxial film disposed over the first insulating substrate; and
a polarizing plate disposed over the biaxial film.